

PROGRESS REPORT

GRANT NUMBER: 7310071

2/1/2016 – 2/29/2016

**Arctic Field Testing and Power Curve Verification of the
Eocycle 25/12 Wind Turbine**

Deliverables Submitted this reporting period

MET Tower equipt

Budget

Amount Invoiced: \$ 273,950.29 so far out of the total budget.

Grant balance \$ 74,349.71

Running Schedule Status

- Turbine has arrived in Kotzebue 9/29/2013.
- Moved to KEA pad for assembly 10/2/2013.
- Pad installation 10/8/2013.
- Eocycle personal at site for commissioning by the 28th October- 15th November
- Anticipated repair/and adjustment date 7/15/2014
- KEA recd and installed ladder and platform on Eocycle tower
- KEA changed out ultrasonic wind sensor.
- KEA replenished hydraulic brake reservoir.
- Eocycle running on Sep 18 2014
- Overspeed condition detected on Saturday September 20th.
- Blade tied off to tower on Sunday Sep. 21st.
- Eocycle personal in Kotzebue for repair of drive and clutch 6th -17th October.
- Repair and commissioning complete 1 Nov 2014
- Eocycle has a rotor brake system malfunction 1/28/2015
- February 10, 2015- Brake hydraulic system refilled. Leak evident.
- March 15th, 2015- Brake hydraulic system continues to leak, waiting for a good day to inspect.
- April-May Due to scheduling issues and weather, no good time was available for repair.
- June 9th Turbine operational,, restarted by KEA.
- Maintenance agreement signed between KEA and NAB for 1 year of service
- Scheduled maintenance for 1 Aug 2015, Eocycle to send replacement parts.
- Maintenance parts arrived as of 18Aug. scheduled parts replacement 25th ..
- Repairs completed 25th Aug.
- Wind event shut down the turbine 31st Aug.
- Tech support and parts replacement negotiated with Eocycle.
- Parts replacement scheduled for 15th Oct. delayed,, hopefully work will be completed by 10/20/2015
- Still waiting for tech support for the repair of the Turbine.

Percent Complete

Tasks/Milestones	Start Date	End Date	Percent Complete
1. Foundation and electrical design	3/1/13	8/20/13	100%
2. Procurement and delivery	3/1/13	9/29/13	100%
3. Foundation work BBFM	7/1/13	10/2/13	100%
4. Install electrical and SCADA	8/1/13	11/15/13	100%
5. Move and update MET tower	6/1/13	10/25/2015	100%
6. Installation and commissioning	10/23/13	8/1/14	100%

7. Operation and monitoring	11/1/13	8/31/16	30%
8. Data analysis and draft project report	3/1/13	7/31/16	30%
9. Final project report		8/15/16	0

Work Progress

Work that was performed in this reporting period:

- **Milestone 5 :**
- MET Re-Instrumentation ongoing. Waiting for KEA to confirm completion.
- MET tower commissioning scheduled for 25th Aug.
- **Milestone 7**
- February 10, 2015- Brake hydraulic system refilled. Leak evident.
- March 15th, 2015- Brake hydraulic system continues to leak,, waiting for inspection time and possible fix.
- April-May the Turbine shut down due to the hydraulic issue. KEA not being able to look over the problem due to scheduling conflicts and imminent issues at KEA.
- June 9th ,, Turbine appears functional and restart will be tried
- July Turbine functioning fine, Maintenance event scheduled for 25 Aug.
- The coupling has sheared. Attached are several pics. Looks like a whole new coupling assm will be needed.
- Parts have arrived for repair, completion date estimated for December 15th.]
- Repairs have been delayed until 3rd week of March, Dennis Meiner has been licensed by Eocycle to perform the warranty work.

Future Work

Work anticipated for the next reporting period:

- Repair of Turbine.
- Data collection

Possible negative impacts:

- Weather.
- Work schedule for KEA

Data collection and analysis:

Ongoing and data link delivered separate from this report..

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